

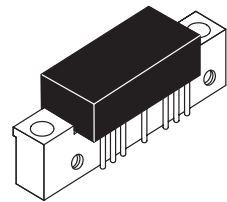
The RF Line Wideband Linear Amplifier

. . . designed for amplifier applications in 50 ohm systems requiring wide bandwidth, low noise and low distortion. This hybrid provides excellent gain stability with temperature and linear amplification as a result of the push-pull circuit design.

- Specified Characteristics at $V_{CC} = 24\text{ V}$, $T_C = 25^\circ\text{C}$:
- Frequency Range — 10 to 450 MHz
 - Output Power — 1 W Typ @ 1 dB Compression, $f = 200\text{ MHz}$
 - Power Gain — 34 dB Typ @ $f = 50\text{ MHz}$
 - PEP — 400 mW Typ @ -32 dB IMD
 - Noise Figure — 5 dB Max @ $f = 300\text{ MHz}$
- All Gold Metallization for Improved Reliability

CA2810C

34 dB
10–450 MHz
800 mWATT
WIDEBAND
LINEAR AMPLIFIER



CASE 714F-03, STYLE 1
[CA (POS. SUPPLY)]

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	28	Vdc
RF Power Input	P_{in}	+5	dBm
Operating Case Temperature Range	T_C	-20 to +100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +100	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 24\text{ V}$, 50 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	10	—	450	MHz
Gain Flatness ($f = 10\text{--}450\text{ MHz}$)	F_L	—	—	± 1.5	dB
Power Gain ($f = 50\text{ MHz}$)	P_G	33	34	35	dB
Noise Figure, Broadband ($f = 300\text{ MHz}$)	NF	—	—	5	dB
Power Output — 1 dB Compression ($f = 200\text{ MHz}$)	$P_{O1\text{ dB}}$	800	1000	—	mW
Third Order Intercept (See Figure 10, $f_1 = 300\text{ MHz}$)	ITO	—	43	—	dBm
Input/Output VSWR ($f = 10\text{--}450\text{ MHz}$)	VSWR	—	—	2:1	—
Second Harmonic Distortion ($P_O = 100\text{ mW}$, $f_{2H} = 10\text{--}300\text{ MHz}$)	d_{so}	—	-55	-45	dB
Reverse Isolation ($f = 10\text{--}450\text{ MHz}$)	—	—	40	—	dB
Peak Envelope Power (Two Tone Distortion Test — See Figure 10) ($f = 10\text{--}450\text{ MHz}$ @ -32 dB IMD)	PEP	—	400	—	mW
Supply Current	I_{CC}	270	310	330	mA

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TYPICAL CHARACTERISTICS

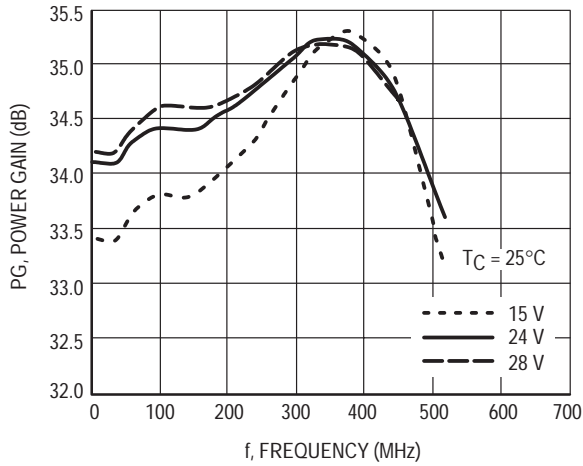


Figure 1. Power Gain versus Voltage

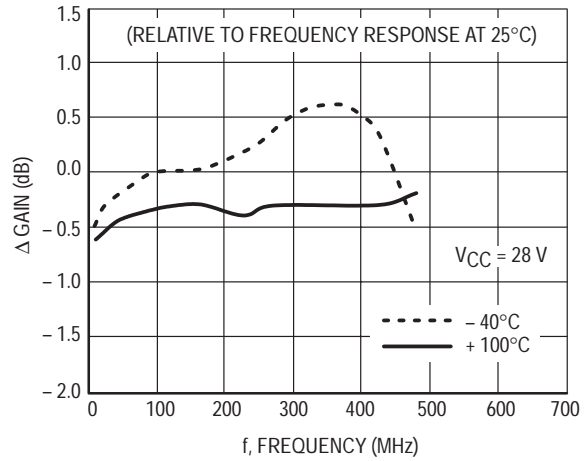


Figure 2. Relative Power Gain versus Temperature

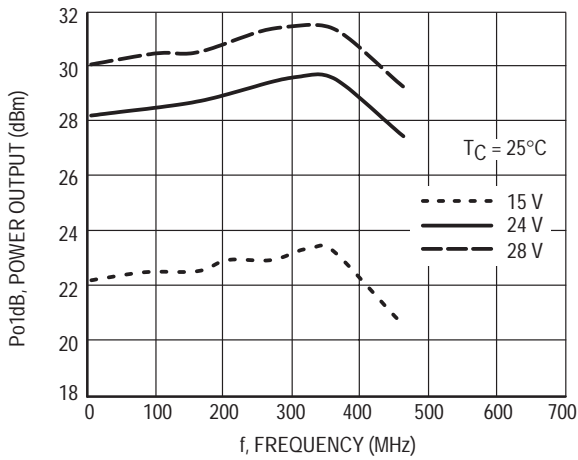


Figure 3. 1 dB Compression versus Voltage

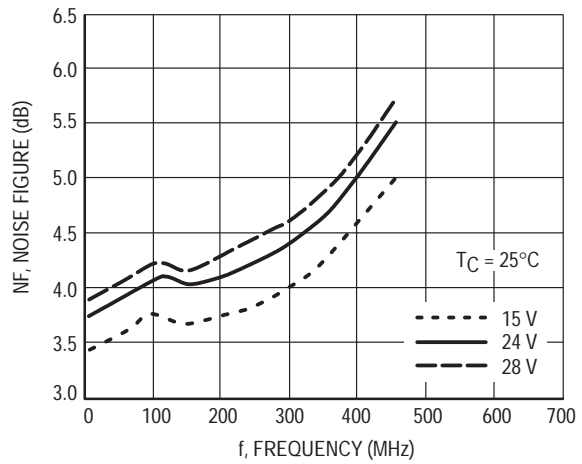


Figure 4. Noise Figure versus Voltage

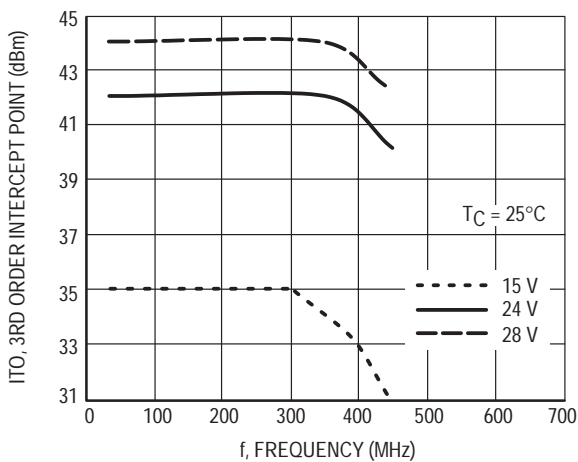


Figure 5. Third Order Intercept versus Voltage

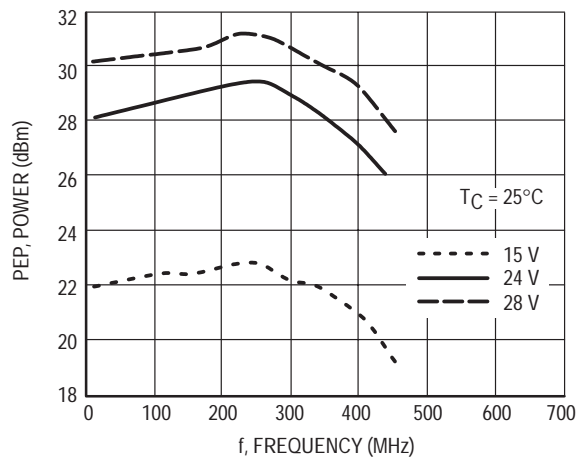


Figure 6. Peak Envelope Power versus Voltage

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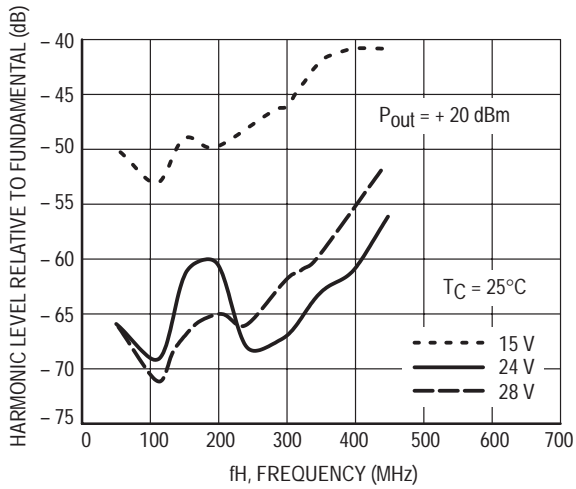


Figure 7. Second Harmonic Distortion versus Voltage

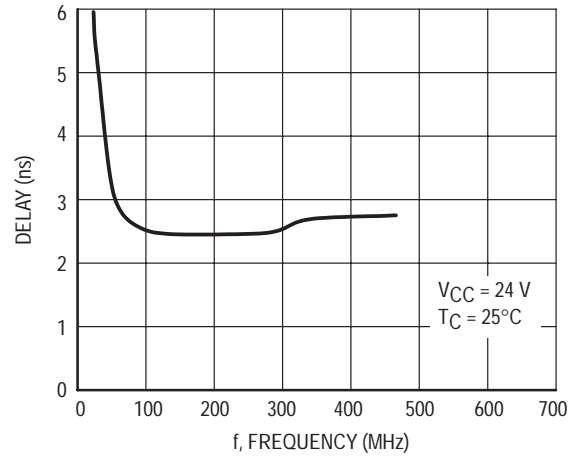


Figure 8. Group Delay versus Frequency

Biased at 24 Volts

T = 25°C Zo = 50Ω

Frequency (MHz)	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
10	-13.8	3.5	34.2	-145	-46	-131	-13.5	8.2
50	-16.0	-3.0	34.2	150	-47	-172	-18.5	4.6
100	-14.4	-14	34.4	88	-48	102	-14.5	-9.2
200	-13.2	-50	34.6	2	-42	35	-13.2	-80
300	-13.9	-79	35.0	-80	-46	65	-16.7	-49
400	-14.1	-115	35.0	-80	-48	-44	-14.2	11
450	-16.2	-122	34.6	120	-53	-82	-13.8	-46

Magnitude in dB, Phase Angle in degrees.

Table 1. S-Parameters

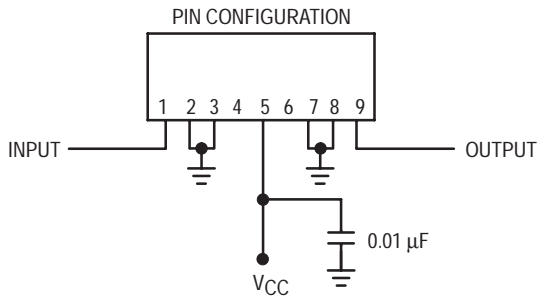


Figure 9. External Connections

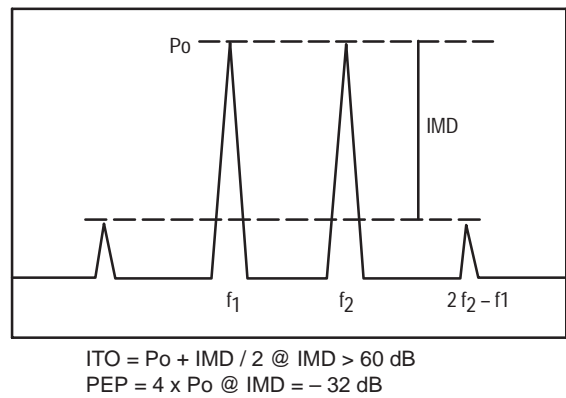
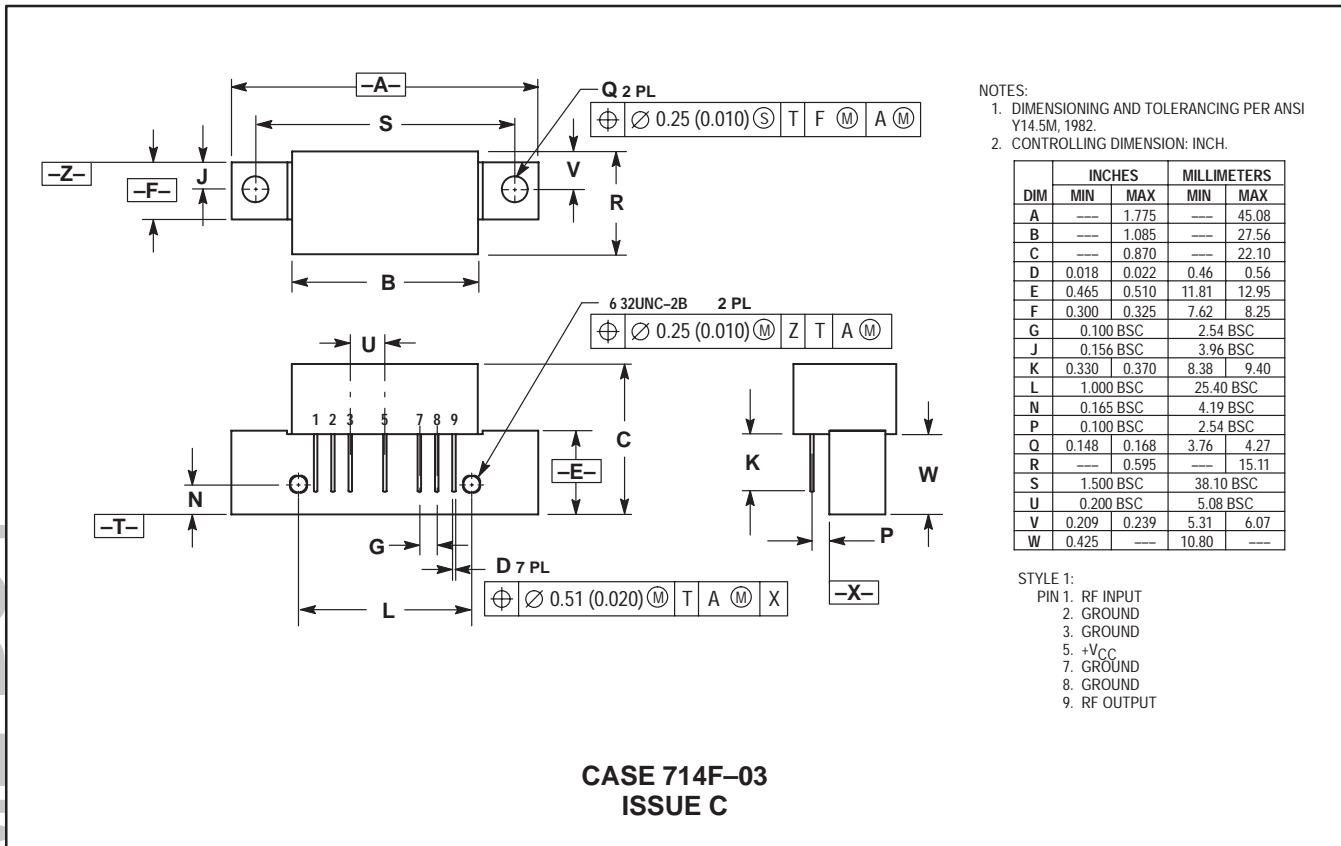


Figure 10. Intermodulation Test

PACKAGE DIMENSIONS



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	---	1.775	---	45.08
B	---	1.085	---	27.56
C	---	0.870	---	22.10
D	0.018	0.022	0.46	0.56
E	0.465	0.510	11.81	12.95
F	0.300	0.325	7.62	8.25
G	0.100 BSC		2.54 BSC	
J	0.156 BSC		3.96 BSC	
K	0.330	0.370	8.38	9.40
L	1.000 BSC		25.40 BSC	
N	0.165 BSC		4.19 BSC	
P	0.100 BSC		2.54 BSC	
Q	0.148	0.168	3.76	4.27
R	---	0.595	---	15.11
S	1.500 BSC		38.10 BSC	
U	0.200 BSC		5.08 BSC	
V	0.209	0.239	5.31	6.07
W	0.425	---	10.80	---

- STYLE 1:
 PIN 1. RF INPUT
 2. GROUND
 3. GROUND
 5. +V_{CC}
 7. GROUND
 8. GROUND
 9. RF OUTPUT

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